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# **Validation Papers for Topical Collection in JGR and Future Validation Publications**

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# Thanks!

- **To 15 lead authors of 19 papers**
  - *H. Aumann, C. Cho, M. Divakarla, E. Fetzer, A. Gettelman, L. McMillin, L. Miloshevich, N. Nalli, P. Rosenkranz, J. Susskind, M. Szczodrak, L. Strow, D. Tobin, V. Walden, D. Whiteman*
- **...and their 56+ co-authors**
  - *C. Barnet, A. Beebe, F. Best, R. Branch, M. Chahine, N. Ciganovich, P. Clemente-Colon, T. Cress, R. Dedecker, B. Demoz, S. Dutcher, A. Eldering, S. Ellington, W. Feltz, A. Gambacorta, R. Garcia, M. Goldberg, S. Gutman, B. Halter, S. Hannon, H. Howell, L. Iredell, A. Jessup, E. Joseph, F. Keita, L. Kouvaris, R. Knuteson, B. Lambrigtsen, D. LaPorte, B. Lesht, E. Maddy, S. Mango, P. Minnet, P. Moore, H. Moettler, G. Molnar, V. Morris, L. Moy, T. Pagano, M. K. Rama Varma Raja, H. Revercomb, W. Roth, F. Russo, W. Smith, D. Staelin, J. Taylor, J. Yoe, P. Van Delst, V. Veselovskii, K. Vinson, H. Vömel, Z. Wang, M. Werner, W. Wolf, J. Zhou, L. Zhou*

***And to the entire AIRS science effort.***



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## Status of the JGR papers

- **All papers are available on the AIRS team web page**
  - <http://airsteam.jpl.nasa.gov/netmeeting/JGR.AIRS.Validation/>
- **Expected publication date is May (two months).**
  - *A few stragglers may not make it into the collection; those will be published later.*



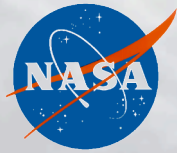
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# State of validation in the JGR Topical Collection, Part I

- **Four papers on directly observed infrared radiances:**
  - *Tobin et al.*, **Radiometric and Spectral Validation of AIRS Observations with the Aircraft-based Scanning High Resolution Interferometer Sounder.**
  - *Walden et al.*, **Radiometric Validation of the Atmospheric Infrared Sounder (AIRS) over the Antarctic Plateau.**
  - *Nalli et al.*, **Ship-based Measurements for Infrared Sensor Validation during AEROSE 2004.**
  - *Tobin et al.*, **Use of AIRS High Spectral Resolution Spectra to Assess the Calibration of MODIS on EOS Aqua.**





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## State of validation in the JGR Topical Collection, Part II

- **Three papers on forward radiative transfer models / microwave retrieval:**
  - *Strow et al.*, [Validation of the Version 4 AIRS Radiative Transfer Algorithm.](#)
  - *Rosenkranz and Barnett*, [Microwave Radiative Transfer Model Validation.](#)
  - *Rosenkranz*, [Cloud Liquid-Water Profile Retrieval Algorithm and Validation.](#)
- ***Another submitted late:***
  - *Saunders et al.*, [A comparison of radiative transfer models for simulating AIRS radiances.](#)



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## State of validation in the JGR Topical Collection, Part III

- **Two papers on the usefulness of in situ observations for validation of AIRS products:**
  - *Whiteman et al.*, **Analysis of Raman Lidar and Radiosonde Measurements from the AWEX-G Field Campaign and Its Relation to Aqua Validation.**
  - *Miloshevich et al.*, **Absolute Accuracy of Water Vapor Measurements from Six Operational Radiosonde Types Launched During AWEX-G, and Implications for AIRS Validation.**



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## State of validation in the JGR Topical Collection, Part IV

- **Five comparisons of retrieved temperature and water vapor with radiosonde observations:**
  - *McMillin et al.*, **Radiosonde Humidity Corrections and AIRS Moisture Data Validation.**
  - *Szczodrak et al.*, **Measurements of Temperature and Humidity Profiles Over the Ocean: Comparisons of AIRS Retrievals with Ship-Based Remote Sensing, In Situ Measurements and ECMWF Analysis.**
  - *Gettelman et al.*, **Relative Humidity over Antarctica from Radiosondes, Satellites and a General Circulation Model.**
  - *Tobin et al.*, **ARM Site Atmospheric State Best Estimates for AIRS Temperature and Water Vapor Retrieval Validation.**
  - *Divakarla et al.*, **Validation of AIRS Temperature and Water Vapor Retrievals with Matched Radiosonde Measurements and Forecasts.**



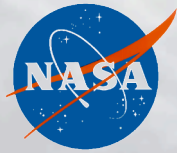
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## State of validation in the JGR Topical Collection, Part V

- **Three comparisons between AIRS and other satellite data sets or model reanalyses:**
  - *Fetzer et al.*, **Biases in Precipitable Water Vapor Climatologies from AIRS and AMSR-E.**
  - *Susskind et al.*, **Accuracy of Geophysical Parameters Derived from AIRS/AMSU as a Function of Fractional Cloud Cover.**
  - *Cho et al.*, **Cloud Clearing of AIRS Hyperspectral Infrared Radiances Using Stochastic Methods.**





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## The next set of validation analyses and publications

- **Some AIRS topics of great scientific interest:**
  - ***Clouds***
  - ***Surface temperature and emissivity***
  - ***Over-land profile retrievals (especially planetary boundary layer).***
  - ***Polar phenomena***
  - ***Upper tropospheric water vapor***
  - ***Trace gases***
  - ***Aerosols***



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# Some Proposed Validation Studies, and the next round of publications (with potential **‘volunteers’**)

- **Clouds**
  - *Two papers in preparation by **B. Kahn** and co-authors.*
- **Surface temperature and emissivity**
  - ***R. Knuteson** and others are organizing this effort.*
- **Over-land profile retrievals (especially planetary boundary layer).**
  - *Need to re-examine radiosondes: **J. Yoe** [for **McMillin**], **D. Tobin**, **M. Divakarla***
- **Polar phenomena**
  - ***A. Gettelman** and **V. Walden** have begun analyses.*
  - ***D. Tobin**, **M. Divakarla** have access to polar radiosondes.*
  - ***H. Ye** looking at AIRS, AMSR-E and ECMWF water vapor.*
- **Upper tropospheric water vapor**
  - *Sondes: **D. Whiteman**, **L. Miloshevich**, **D. Tobin**, **H. Vömel**.*
  - *AIRS-MLS comparison: **E. Fetzer**.*
- **Minor gases**
  - ***M. Chahine** ( $\text{CO}_2$ ).*
  - ***W. Irion** ( $\text{O}_3$ ).*
  - ***W. McMillin** ( $\text{CO}$ ).*
- **Aerosols**
  - ***L. Strow**.*



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## Planning for the next round of validation publications

- **A couple proposals for the future:**
  1. *Organize another validation special issue*
  2. *Individual papers addressing*

**The weather and climate community has a strong  
interest in *all* AIRS validation publications.**